

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Shau-Lin SHUE, et al.	§	Docket No.:	1998-0615/
		§		24061.286
Serial No.:	10/733,722	§		
		§	Examiner:	Patricia Ann George
Filing Date:	December 11, 2003	§		
		§	Art Unit:	1765
For:	SIDEWALL COVERAGE FOR	§		
	COPPER DAMASCENE	§		
	FILLING	§		

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner of Patents and Trademarks
Alexandria, VA 22313

Dear Sir:

Shau-Lin Shue, Mei-Yun Wang, Chen-Hua Yu, hereby declare that:

1. We are the co-inventors of the subject matter of the above patent application as therein described and claimed.
2. At all times set forth herein, we were employed as engineers with Taiwan Semiconductor Manufacturing Company, Ltd. ("TSMC"). TSMC is the assignee of the above-identified application.
3. Prior to November 2000, we conceived of the subject matter of the present invention, prepared the attached Invention Disclosure Form (Exhibit A), and submitted them to TSMC for processing for a patent application. Evidence of conception is shown, for example, in the "Points of this invention thought to be novel" section of the invention Disclosure Form, which reads "a soft sputtering is supplemented after seed layer deposition which can produce a wide-opening profile of damascene or via before Cu deposition."
4. Prior to November 2000, TSMC hired the law firm of George O'Saile, to prepare a parent of the above-identified patent application. Then, along with the patent attorneys from George O'Saile, we began to diligently prepare a parent of the above-identified patent application.
5. On July 22, 1999, a parent of the above-identified patent application was filed with the U.S. Patent and Trademark Office. The serial no. of the parent application is 09/358,983.
6. On November 20, 2001, a continuation-in-part (CIP) of the parent application was filed with the U.S. Patent and Trademark Office. The serial no. of the CIP is 11/20/2001.

7. On December 11, 2003, the above-identified patent application, a continuation application of the CIP, was filed with the U.S. Patent and Trademark Office

8. On or about January 27, 2006, the powers of attorney were revoked from George O'Saile, and were appointed to Haynes and Boone, LLP.

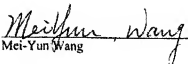
7. At no time were our activities regarding disclosure of our invention in the above-identified patent application ever suspended. We diligently moved toward disclosing our invention by filing the parent application.

8. Based on the foregoing facts, we conceived the above-referenced invention prior to November 2000, and we were diligent in preparing a parent of the above-identified patent application for filing on July 22, 1999.

9. Furthermore, we declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-identified patent application or document or any patent issuing therefrom.

We declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed on November ____, 2006.


Shau-Lin Shue


Mei-Yun Wang

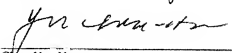

Chen-Hua Yu

EXHIBIT A

Invention Disclosure Form

Disclosure No	TSMC1998-0615			Received Date		[REDACTED]		Process Priority	Normal
Area	R&D			Divi		AMTD		Dept	DCD
Author	藍曉林			Review decision		Accept			
Merge Into				Merge With					
Emp. ID	English, the same as passport	Chinese	Dept	Dept Code	Current Dept	Ext No	E-mail		
For Investors from outside of tsmc please use "X96"									
006006	SHAU-LIN SHUE	藍曉林	null	null	EBMD	712-5353/2353	winston_shue@tsmc.com		
006279	MEI-YUN WANG	王美勻	null	null	AMEP	712-5794	MYWANG@tsmc.com		
004620	CHEN-HUA YU	余麗華	null	null	AMTD	712-5358/2358	CHYU@tsmc.com		
Title of Invention (English Only) *	IMPROVEMENT OF SIDEWALL COVERAGE FOR COPPER DAMASCENE FILLING.								
Assignee *	<input checked="" type="checkbox"/> 1.TSMC <input type="checkbox"/> 2.TSMC &								
Related disclosure (s)									
Laboratory Notebook 研究記錄簿相關資訊	This idea was shown on page null of the laboratory notebook with serial number of null (such as 2002-000036). Please attach a copy of the related pages.								
Novelty Related Information 發明新穎性相關資訊	1. Will this Invention be disclosed, published, utilized, commercialized or implemented in Customer's product(s)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes. When _____ 國際必須寫本發明之預定論文發表或展覽或實施或商業化於客戶產品的日期，以加速申請流程。 2. Other special request: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes. Reason: _____								
Classification *	Multiple Choice(複選) 1.Who might use this invention: /本發明的潛在使用者* 2.Technology Generation /本發明適用於(適用於一般技術請選擇General/ALL, 特殊技術請選擇Others)* 3.Product /本發明應用在(應用於一般技術請選擇General, 特殊技術請選擇Others)* Single Choice(單選) 4.Field of invention /發明範圍 (請選擇與本發明最相近的類別)* 5.Must use <input type="checkbox"/> Must use								
References similar to the invention / 與本發明相關的論文及/或專有									
1.Related patent number/相關的專利號碼									
2.Related non-patent article(s) and/or product(s)/其他相關的論文名稱或產品名稱									
Old method(s) or Product(s) for performing the purpose of this Invention (English Only) * 舊方法簡介									
Problems or disadvantages faced by old method(s) or product(s)(English Only) * 舊方法所面臨的問題及缺點									

General purpose of this invention(English Only) * 發明目的
1.The formation of key hole or seam can be reduced. 2 The electrical performance and reliability of Cu damascene will be improved.
Advantages of this invention (English Only) * 本發明的好處或優點
Points of this invention thought to be novel, list by items. Please identify which elements/steps are must and which elements/steps are optional.(English Only) 發明項列舉為達成發明目的所使用的新方法或手段，即，本發明與目前方法的主要不同處，並闡明出必要及非必要元件
1.Ar soft sputtering is supplemented after seed layer deposition which can produce a wide-opening profile of damascene or via before Cu deposition. 2.Ar soft sputtered thickness is from 50~300 angstrom.
Detailed description of this invention(English Only) * 發明的詳細描述，至少應包含一最好的實施例，及/或其他適用於本發明的範例。
Other embodiments/methods/apparatus can be used to achieve the purpose of this invention by a potential infringer(English Only) 其他可實現本發明目的之手段？或其他可用來迴避本發明的範例及做法？
Claim Tree
Attachments/圖形圖用附加檔